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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,747	02/11/2002	Pantas Sutardja	MP0096	9964

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KATTEN MUCHIN ZAVIS ROSENMAN (MARVELL)
IP DOCKET
1025 THOMAS JEFFERSON STREET, N.W.
SUITE 700, EAST LOBBY
WASHINGTON, DC 20007-5201

EXAMINER

TORRES, JOSEPH D

ART UNIT PAPER NUMBER

2133

DATE MAILED: 04/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/074,747

Applicant(s)

SUTARDJA ET AL.

Examiner

Joseph D. Torres

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 24-33, 38-47, 65-74, 88-97, 102-111, 118-137, 155-164 and 171-180 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Continuation of Disposition of Claims: Claims pending in the application are 1-10,24-33,38-47,65-74,88-97,102-111,118-137,155-164 and 171-180.

DETAILED ACTION

Drawings

1. In view of the Amendment filed 03/04/2005, all objections to the drawings are withdrawn.

Specification

2. In view of the Amendment filed 03/04/2005, all objections to the abstract are withdrawn.

Response to Arguments

3. Applicant's arguments filed 03/04/2005 have been fully considered but they are not persuasive.

The Applicant contends, "For example, the present application clearly discloses that "the present invention employs an enhancement to the Hamming weight of the data prior to encoding to increase the effectiveness of the ECC and RLL encoding processes. [present application, page 9, paragraph 0019]"... "Thus, it is respectfully submitted that a skilled artisan would recognize 'how the limitations in the body of the claim are related to the communication encoding' when the claims are read in light of the disclosure. Accordingly, it is respectfully submitted that claims 1, 38, 118, 128 and 17 1 of the present application 'reasonably apprise a person of ordinary skill in the art of

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the invention.' It is respectfully submitted that claims 1, 38, 118, 128 and 171 do not omit any essential element or step".

The Examiner disagrees and asserts that the requirement of 35 USC § 112 is that the claim itself particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Applicant admits that the claim fails to point out and distinctly claim the subject matter which applicant regards as the invention and that one of ordinary skill in the art at the time the invention was made would have to read the specification instead to make that determination.

The Applicant contends, "It is respectfully submitted that the Applicants have recited claims that emphasize that which has been invented. To require the Applicants to recite each and every step or element in the entire encoding process would require Applicants to recite in the claims that which is old. No such requirement exists under the patent laws".

The Examiner disagrees and asserts that the requirement of 35 USC § 112 is that the claim itself particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1, for example recites a communication encoding method but does not recite any step that give any indication what connection the body of claim 1 has with a communication encoding method.

The Applicant contends, "According to M.P.E.P. § 2173.02, 'the test for definiteness under 35 U.S.C. § 112, second paragraph, is whether 'those skilled in the art would

understand what is claimed when the claim is read in light of the specification."

(M.P.E.P. § 2173.02 (citations omitted) (emphasis added) If one skilled in the art is able to ascertain the meaning of the terms used in the claim in light of the specification, 35 U.S.C. §112, second paragraph, is satisfied"... "Based on the foregoing, it is respectfully submitted that a skilled artisan would recognize 'the relationship between the processing and the comparison' when the claims are read in light of the specification".

The Examiner disagrees and asserts that undue experimentation would be required of one of ordinary skill in the art at the time the invention was made to recognize the relationship the recited paragraph [0047] on page 19 has with the claim language since the recited paragraph does not even refer to initial binary data or processed binary data. The Examiner would also like to point out that the Applicant's arguments are incomplete since the Applicant has failed to point out the relationship between initial binary data and processed binary data used in the claim language and any of the data elements recited in paragraph [0047] on page 19.

The Applicant contends, "Consequently, it is respectfully submitted that claims 10, 33, 47, 74, 97, 111, 127, 137, 164 and 180 do not omit any essential elements or steps, and that the term it 'does not change relative to' is not indefinite, as 'those skilled in the art would understand what is claimed when the claim is read in light of the specification.'"

The language "wherein a symbol boundary of an encoded symbol does not change relative to error correction coding" is still indefinite. The term "relative to" is indefinite.

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An encoded symbol is just an encoded symbol. If the boundary of the encoded symbol changed it would not be the same encoded symbol. The language does not specify any action or give any reason why a change could be anticipated. Given that no action takes place one of ordinary skill in the art at the time the invention was made would expect nothing to happen. Basically the language adds nothing.

The Applicant contends, "With regard to the rejection of claims 102 and 155, the Patent Office asserts that the disk drives recited in these claims allegedly omit essential elements, in particular, 'how the limitations of the body of the claim are related to communication encoding.' Yet again, it is respectfully submitted that the Patent Office is completely and utterly failing to interpret the claims in light of the disclosure, as required by the mandates of 35 U.S.C. §112, second paragraph"... "claims and disclosure are not to be evaluated in a vacuum. If elements of an invention are well known in the art the applicant does not have to provide a disclosure that describes those elements. ' (M.P.E.P. j 2106)"

The Examiner disagrees and asserts that the requirement of 35 USC § 112 is that the claim itself particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 102 recites a disk drive comprising "a processor in communication with the data input for determining the characteristic Hamming weight...". Such a processor does not exist in the prior art, hence the disclosure must describe that element.

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The Applicant contends, "Additionally, the applicant need not explicitly recite in the claims every feature of the invention".

While that is true, 35 USC § 112 still requires that the claims particularly point out and distinctly claim the subject matter which applicant regards as the invention. Even the Applicant admits on page 9, paragraph [0019] of the Applicant's disclosure that the Applicant's invention is directed to a method for enhancing the Hamming weight of data prior to encoding to increase the effectiveness of the ECC and RLL encoding processes, yet nowhere in the independent claims does that Applicant claim any ECC or RLL encoding nor features that relate the ECC or RLL encoding to the features recited in the claims.

The Applicant contends, "If this rejection is repeated, the Patent Office is requested to point out the precise law and/or rule, the exact section of the M.P.E.P., as well as the sentences within that section relied upon to support the Patent Office's unfounded requirement". The Applicant contends, "The Examiner asserts that 35 USC § 112 requires that the claims particularly point out and distinctly claim the subject matter **which applicant regards as the invention.**

The Applicant provides the following example from the MPEP for claim language that overcomes 35 USC § 101 issues: "[a] digital filtering process for removing noise from a digital signal comprising the steps of calculating a mathematical algorithm to produce a correction signal and subtracting the correction signal from the digital signal to remove

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the noise. (M.P.E.P. § 2106)", but incorrectly interprets why the language overcomes 101 issues. The Examiner asserts that the examples in M.P.E.P. § 2106 are carefully crafted examples of claim language for various arts that overcomes 101 issues by ensuring elements in the body of the claim require hardware implementation (Note: subtracting the correction signal from the digital signal to remove the noise requires hardware since noise and signals transmitted through noisy environments cannot be dealt with without the use of hardware, i.e., at a minimum a demodulator and sampler or equivalent hardware are required for demodulating and sampling the signals and noise; the Examiner asserts that it is impossible to subtract "the correction signal from the digital signal to remove the noise" without using hardware) and 112 issues by ensuring elements of the preamble are connected to the body of the claim language (Note: "digital signal" and "noise" in the preamble are also used in the body of the claim; hence by this arrangement the preamble must be given full patentable weight since it provides antecedent basis for the body of the claims). The Examiner would like to point out that the independent claims in the Applicant's disclosure have preambles with no connection to the body of the claims and that a preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). On the other hand there is no limitation in the body of the claims that requires any hardware, for example, "initial

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binary data” is still a sequence of ones and zeros that can be written on paper and the entire abstract algorithmic process of claim 1, for example can be carried out by hand or in computer software. Furthermore, the Applicant admits that this is the case in claims 65 and in the arguments filed 03/04/2005. Abstract algorithms and computer software are non-statutory.

The Applicant contends, “Claim 1 of the present application recites, among other features, a communication encoding method that includes the steps of: obtaining initial binary data having a characteristic Hamming weight', determining the characteristic Hamming weight of the initial binary data; performing a comparison of the characteristic Hamming weight of the initial binary data with a predetermined value; and processing the initial binary data based on the comparison to thereby develop *processed binary data* having a Hamming weight not less than the characteristic Hamming weight of the initial binary data. Thus, just as in the digital filtering process example illustrated above, it is respectfully submitted that claim 1 produces a 'useful, concrete and tangible result' in the processed binary data”.

The Examiner asserts that a process can be an abstract algorithm for carrying out the process and processed binary data is still just binary data. There is no part of claim 1 that requires any hardware.

The Applicant contends, “For example, it is respectfully noted that claim 38 of the present application recites a communication encoding apparatus including a data input

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for receiving initial binary data having a characteristic Hamming weight. The apparatus also includes a processor in communication with the input for determining the characteristic Hamming weight of the initial binary data, performing a comparison of the characteristic Hamming... "Thus, not only is a 'useful, concrete and tangible result' produced by the apparatus, but claim 38 also identifies the physical structure of the machine".

The Examiner withdraws the 101 rejection of claims 38, 102 and 171.

The Applicant contends, "It is respectfully noted that independent claims 102, 118, 128, 155 and 171 also recite the physical structure of the respective machines".

The Examiner disagrees and asserts that a means for processing in claims 118, 128 and 155 can be an abstract algorithm and an abstract algorithm is non-statutory.

The Applicant contends, "With regard to independent claims 65 and 88, each recites a computer-readable medium 'having stored thereon' executable instructions for performing the communication encoding method according to exemplary embodiments. According to M.P.E.P. § 2106, 'when functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized.'"

The Examiner asserts that that claims 65 and 88 recite no function relating the abstract algorithm in the body of the claims that functionally relates the computer readable

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medium and in fact the Applicant admits that there is no functional relationship in the Applicant's current arguments (see page 36 of the Applicant's currently filed arguments) stating the computer readable medium serves only to store the abstract algorithm. Storing a non-statutory computer program on a floppy disk does not make it statutory since it is well known in the art that any computer program can be stored on disk. The Applicant is only stating the obvious.

The Applicant contends, "As discussed at length herein, exemplary embodiments of the present invention produce a 'useful, concrete and tangible result' in the processed binary data".

The Examiner asserts that while that may be true the claims themselves only recite an abstract calculation. An abstract calculation (say adding $2+2$) can only be considered to produce a 'useful, concrete and tangible result', if the details for producing a 'useful, concrete and tangible result' are recited in connection with the abstract calculation. As such, the independent claims are only directed to an abstract calculation and do not demonstrate how that abstract calculation is used for producing any 'useful, concrete and tangible result'.

The Applicant contends, "In complete contrast to Nazari, exemplary embodiment of the present invention employ an enhancement to the Hamming weight of data prior to encoding to increase the effectiveness of the ECC and RLL encoding processes". [see present application, page 9. paragraph 001] According to an aspect of the present

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invention, such as recited in independent claim 1 of the present application, initial binary data to be communicated or stored is obtained”.

The Examiner asserts that nowhere in claim 1 does any of the claim language recite “ECC and RLL encoding processes”. In addition, “initial binary data” is only binary data that is initially used before a process, there is nothing in the claim language of claim 1 that requires that the initial binary data be tied to any “ECC and RLL encoding processes”.

The Applicant contends, “Therefore, it is respectfully submitted that Nazari does not disclose several steps or features of the present invention, including the steps of determining the characteristic Hamming weight of the initial binary data, and performing a comparison of the characteristic Hamming weight of the initial binary data with a predetermined value, as recited, for example, in claim 1 of the present application. Consequently, it is respectfully submitted that Nazari does not anticipate the subject matter of claim 1”.

The Examiner disagrees and asserts that Nazari teaches determining the characteristic Hamming weight of the initial binary data (col. 2, lines 5-10 in Nazari teach that the initial 32-bit binary input data is tested to see if the characteristic Hamming weight of the initial 32-bit input binary data is greater than 9); and performing a comparison of the characteristic Hamming weight of the initial binary data with a predetermined value (Note: verifying that the initial 32-bit binary input data has a characteristic Hamming weight greater than 9 is a step for performing a comparison of the characteristic

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Hamming weight of the initial 32-bit binary input data with a predetermined minimum Hamming weight value of 9).

Claim Rejections - 35 USC § 112

4. In view of the Amendment filed 03/04/2005, all 35 USC § 112, first paragraph rejections to the claims are withdrawn.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-10, 24-33, 38-47, 65-74, 88-97, 102-111, 118-137, 155-164 and 171-180 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See the Non-Final Action filed 12/22/2004 for detailed action of prior rejections.

Claim 1, 24, 38, 65, 88, 102, 118, 128, 155 and 171 recite, "processing the initial binary data based on the comparison". The term "based on" is indefinite.

See the Non-Final Action filed 12/22/2004 for detailed action of prior rejections.

Claims 10, 33, 47, 74, 97, 111, 127, 137, 164 and 180 recite; "wherein a symbol boundary of an encoded symbol does not change relative to error correction coding."

The omitted elements are: how a symbol boundary relates to any of the other data structures such as "initial binary data". The term "does not change relative" is indefinite.

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Claim 65 recites, "A computer readable medium having stored thereon".

See the Non-Final Action filed 12/22/2004 for detailed action of prior rejections.

Claim 102 recites, "A disk drive". See MPEP § 2172.01. The omitted elements are:

how the limitations in the body of the claim are related to a disk drive.

See the Non-Final Action filed 12/22/2004 for detailed action of prior rejections.

Claim 155 recites, "A disk drive". See MPEP § 2172.01. The omitted elements are:

how the limitations in the body of the claim are related to a disk drive.

See the Non-Final Action filed 12/22/2004 for detailed action of prior rejections.

Claims 1-10, 24-33, 38-47, 65-74, 88-97, 102-111, 118-137, 155-164 and 171-180 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

See the Non-Final Action filed 12/22/2004 for detailed action of prior rejections.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 1-10, 65-74, 88-97, 118-137 and 155-164 are rejected under 35

U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

See the Non-Final Action filed 12/22/2004 for detailed action of prior rejections.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(f) he did not himself invent the subject matter sought to be patented.

7. Claims 1-10, 24-33, 38-47, 65-74, 88-97, 102-111, 118-137, 155-164, 171-180 are rejected under 35 U.S.C. 102(e) as being anticipated by Nazari; Nersi et al. (US 6456208 B1, hereafter referred to as Nazari).

See the Non-Final Action filed 12/22/2004 for detailed action of prior rejections.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Torres whose telephone number is (571) 272-3829. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JOSEPH TORRES
PRIMARY EXAMINER

Joseph D. Torres, PhD
Primary Examiner
Art Unit 2133